
Contributions Of Affordances To Gamification

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Abstract

This paper represents theoretical reflections about the effects of affordances in gamification. Affordances, a visual clue to the function of an object, constitute major design elements in gamified applications. We propose a framework to validate the effects on engagement of target groups.

Author Keywords

Gamification; Affordances; Usability; Human Computer Interaction; Engagement.

ACM Classification Keywords

C.4 Performance of systems: Design studies, measurement techniques, modeling techniques, performance attributes

D.2.4 Software/Program Verification: Statistical methods

H.3.4 Systems and Software: Performance evaluation (efficiency and effectiveness)

Introduction

The concept of gamification has received increased attention in recent years. Gamification works with the concept of affordances to engage users, however, the contribution of each individual affordance has not been

investigated yet. We propose a way to analyze single elements of gamification and their impact on target groups.

Background & Related Work

Gamification has been defined as the process of “the process of game-thinking and game mechanics to engage users and solve problems” with gamification techniques striving “to leverage people’s natural desires for competition, achievement, status, self-expression, altruism, and closure”. [Zichermann][Boundless]

Gamification uses affordances, visual hints to the usage of an object. The term originated from psychology and is now widely used in Human Computer Interaction (HCI).

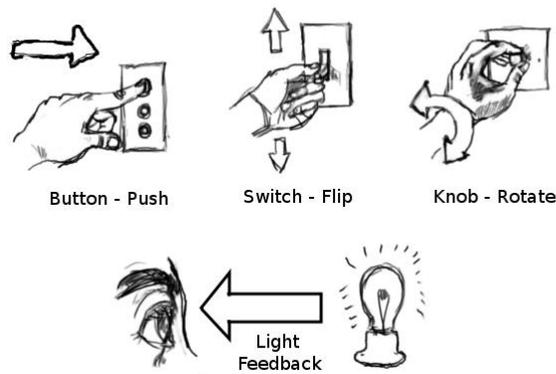


Figure 1: Affordances. A button invites a subject to push it, a switch requires flipping, a knob affords rotating. A light source provides visual feedback. Image source: <http://paaralan.blogspot.jp/2010/09/affordance-and-educational-games.html>

Examples for affordances in gamification include points, badges, leaderboards, progression, status, rewards, and roles. [Seaborn]

The impact of affordances, and gamification as a whole, is measured in engagement. Engagement in turn is measured in duration, recency, frequency, virality, and ratings. Duration describes how long an application is being used, recency denotes when was it used for the last time, frequency counts how often is it being used, virality shows how often it was shared, e.g. on social media, and ratings might operate on a 1-5-star scale from worst to best.

While the existing literature provides evidence that gamification works, the contribution to engagement by individual affordances has not been investigated. We therefore aim to measure the effects of e.g. points on duration, badges on frequency, and leaderboards on ratings. Furthermore, we are interested in focus groups. Are young people engaged more than seniors? Do women appreciate points more than men? Are certain regions more susceptible to gamification?

Methodology

In order to investigate the contributions of individual affordances to gamification, we need a base application to test. The National Institute of Informatics in Japan has developed “Genkii”, an app that lets users report their happiness at a specific location. An icon is placed on the map and users can investigate where people are happy, sad, and indifferent.

This basic functionality can be upgraded with elements of gamification, most prominently points, badges, and leaderboards. The introduction of these elements



Figure 2: Genkii, developed by the National Institute of Informatics in Japan. Users can report their happiness at their current location.

should have positive impacts on engagement. In order to establish the effect of that impact, multiple versions of our application should be prepared. One basic application, one application including a point-system, one application with badges, and one application that features a leaderboard system.

A service called "Playbasis" provides this functionality. It enhances applications with gamification elements that we can investigate.

Previously, the Genkii application has been populated by Yahoo crowdsourcing. We intend to apply the same approach to obtain user data for our analysis. We expect our findings to provide valuable insight on the design of future applications using a gamified approach. In particular, we aim to examine whether certain target groups respond differently to various types of affordances. This could help with future designs of applications aimed at specific groups.

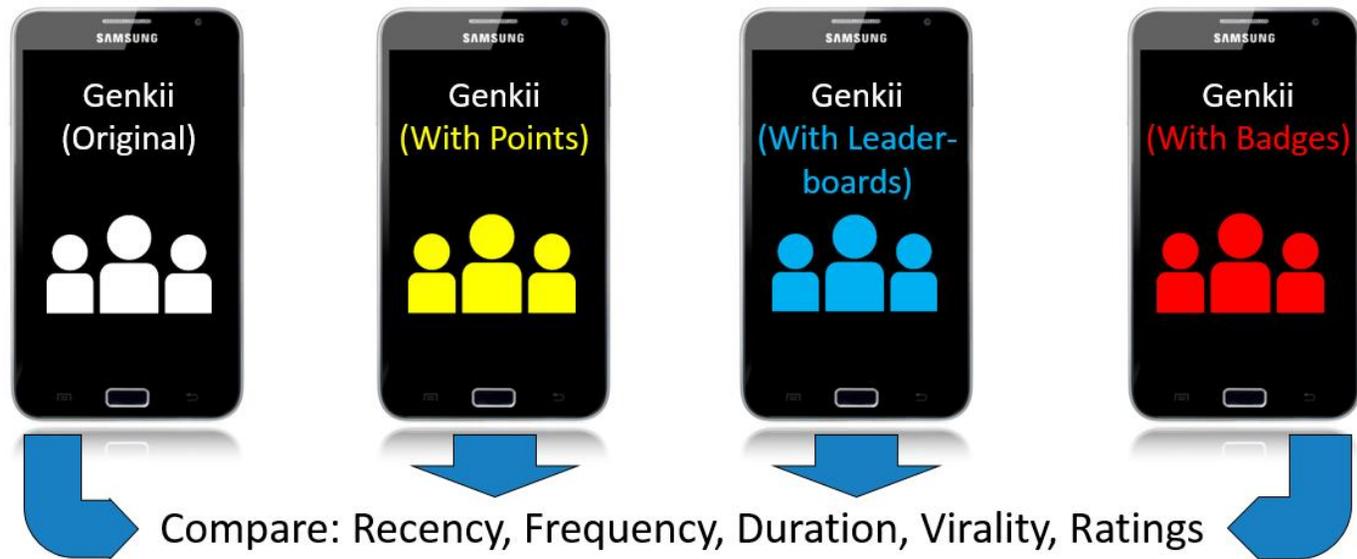


Figure 3: Methodology of our study. We aim to compare the different contributions of affordances (points, badges, leaderboards) to engagement (duration, recency, frequency, virality, ratings) in gamification.

Acknowledgements

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